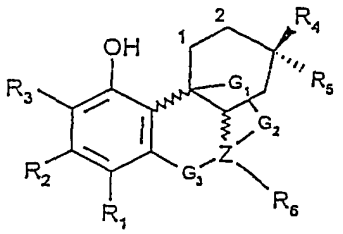
Claims

1. Compounds of the general formula (II)



[X]

Formula (II)

in which R_1, R_2 either are the same or different and represent

- hydrogen, F, Cl, Br, I, CN, NC, OH, SH, NO_2, SO_3H, NH_2, CF_3, or
- substituted or unsubstituted straight or branched lower (C_1-C_6) alkyl or alkoxy or
- an amino group substituted by one or more substituted or unsubstituted straight or branched lower (C_1-C_6) alkyl or alkyl carbonyl or alkoxy carbonyl group or
- a COOH, COO alkyl, CONH, CON alkyl group or
- $-(CH_2)_n-Cl$, $-(CH_2)_n-Br$, $-(CH_2)_n-OH$, $-(CH_2)_n-COOH$, $-(CH_2)_n-CN$, $-(CH_2)_n-NC$, in which
- R_1-R_2 may together form $-CH=CH-CH=CH-$, $-O-(CH_2)_n-O-$, with n = 1 to 3;

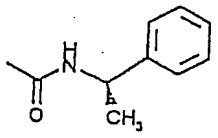
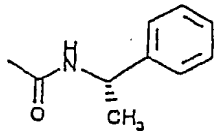
R_3 is OCH_3 or the same as R_1, or

R_2-R_3 can jointly form: $-O-(CH_2)_n-O-$, with N = 1 to 3;

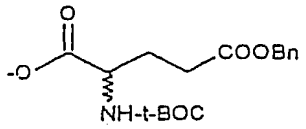
R_4, R_5: are both hydrogen or, alternatively, any combination of hydrogen or an alkyl, alkenyl, alkinyl, or

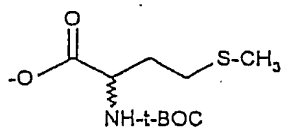
- S-R_8, wherein R_8 is hydrogen or a substituted or unsubstituted straight or branched lower (C_1-C_{10}) alkyl group
- SO-R_8, SO_2R_8

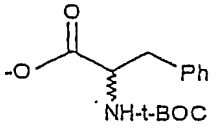
- OH, O-protective group
- O-CS-N-R_8 (thiourethanes)
- O-CO-N-R_9, wherein R_9 has the following meaning:

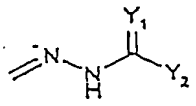
- O-CO-R_8, including esters with a substitution pattern of amino acids as follows

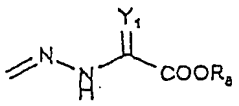






- R_4, R_5 may jointly be hydrazone (=N-NH-R_{10}, =N-N(R_{10}, R_{11}), oximes (=N-O-R_{11}), wherein R_{10} is hydrogen, a substituted or unsubstituted straight or branched lower (C_1-C_6) alkyl or alkyl carbonyl or alkyl carbonyloxy group as well as a sulfonic acid group, and R_{11} is hydrogen, a substituted or unsubstituted straight or branched lower (C_1-C_6) alkyl or alkyl carbonyl group, as well as a sulfonic acid group;
- R_4 and R_5 may also be:





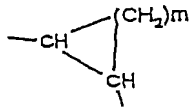
wherein Y_1, Y_2 = O, S, NH or N-R_{10} (excess valences in each case are -H)

• wherein, in the event that R_4 is not H, R_5 can also be OH and, in the event that R_5 is not H, R_4 can also be OH.

G_1, G_2: jointly or separately have the meaning:

• -C(R_{13}, R_{14})-, wherein R_{13}, R_{14} can be hydrogen, OH, a substituted or unsubstituted straight or branched lower alkyl, aryl, alkoxy or aryloxy group or jointly an alkyl spiro group (C_3 to C_7 spiro ring).

• G_1 and G_2 may jointly represent



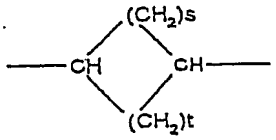
with m = 1 to 7

G_3: represents CH_2 or =CO

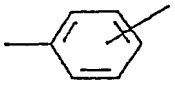
R_6 represents a group -$(G_4)_p$-$(G_5)_q$-G_6 with p, q = 0-1, in which G_4 satisfies the following definition

• -$(CH_2)_s$-, -C(R_{15}, R_{16})-$(CH_2)_s$-, with R = 1 to 6 and R_{15}, R_{16} = hydrogen, or substituted or unsubstituted straight or branched lower alkyl, cycloalkyl, or aryl groups

• -O- or -NR_{15}



wherein s = 1-4, and t = 0-4

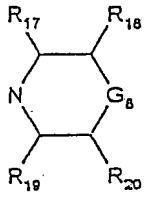


, that is an ortho, meta or para disubstituted aromatic

, wherein $G_7 = NR_{15}$, O or S,

G_5 can be identical with or different from G_4 and, in the event that P = 1, additionally represents -S-,

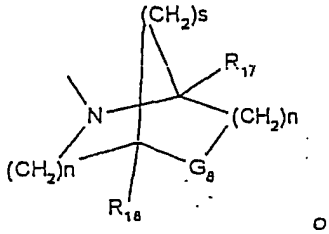
G_6 fulfills the following definition:



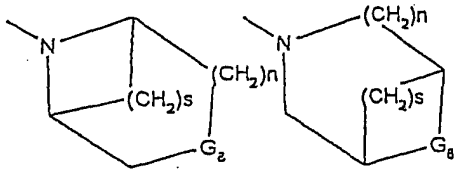
wherein

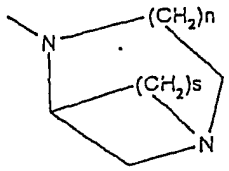
- R_{17}, R_{18}, R_{19} and R_{20} individually or jointly are the same or different, and are hydrogen, substituted or unsubstituted straight or branched lower alkyl, cycloalkyl or aryl groups, where R_{17} and R_{18} and R_{19} and R_{20} can jointly form a cycloalkyl group (with a ring size of 3-8)
- G_8 = O, S, NH, $NR_{21}-(CH_2)_n-$,
- R_{21} = CHO, $COOR_{17}$ or a heteroaryl group, which is unsubstituted or substituted identically or differently by one or several F, Cl, Br, I, NO_2, OH, alkyl, alkyloxy, CN, NC or CF_3, CHO, COOH, COO alkyl, SO_3H, SH or S-alkyl groups, or
- a methyl group, which is substituted by 1-3 phenyl groups, which are unsubstituted or substituted identically or differently by one or more F, Cl, Br, I, NO_2 alkyl, alkyloxy, CN, NC or CF_3 groups,

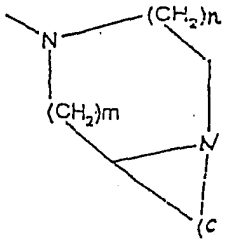
wherein G_8 can also be:

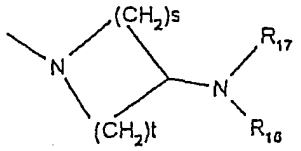


or









- -CHO, $COOR_{17}$, $-CONR_{17}$

- a substituted or unsubstituted straight or branched lower alkyl, alkenyl, alkinyl, cycloalkyl or aryl groups,

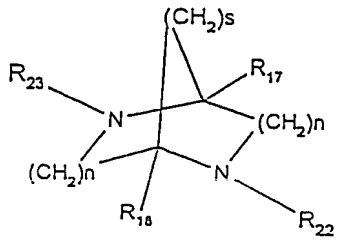
- $-O-R_{17}$, $-NR_{17}R_{18}$, phthalamido, -CN or -NC;

R_7 is identical with R_6 or represents $-O^{(-)}$ (N-oxide) or a free electron pair (e-pair), wherein R_6 and R_7 can also form a common ring, 3 to 8 carbon atoms in size and

- X exists only if, and represents an ion of a pharmacologically unstable inorganic or organic acid, where R_5 and R_6 are present and the nitrogen atom thus carries a positive charge; and

- Z = N or N^+ in the event that R_4 and R_7 are present jointly and R_7 is not O^-.--

2. Compounds having the general formula (III):



Formula (III)

wherein R_{22}

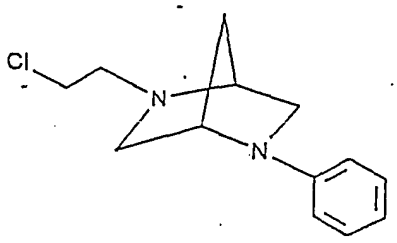
- is a (hetero) aryl group, which is unsubstituted or substituted identically or differently by one or several F, Cl, Br, I, NO_2, NH_2, OH, alkyl, alkoxy, CN, NC or CF_3, COOH, COOalkyl, SO_3H, SH or S-alkyl groups or
- a methyl group, which is substituted by two phenyl groups, which are substituted identically or differently by one or more F, Cl, Br, I, NO_2, NH_2, OH, alkyl, alkoxy, CN, NC or CF_3, CHO, COOH, COOalkyl, SO_3H, SH or S-alkyl groups,

R_{17}, R_{18}, n, s having the meanings given for the general formula (I) and

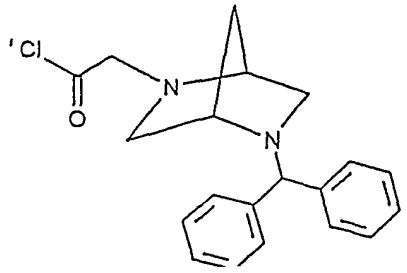
$R_{23} = -(G_5)_q - (G_4)_p - G_9$

wherein G_4 and G_5 have the meanings given for the general formula (I) and G_9 is defined as F, Cl, Br, I, OH, O-ts, O-ms, O-triflate, COOH COCl CHO, $-O-R_{17}$, $-NR_{17}R_{18}$, phthalimido, -CN or -NC or by other groups suitable for nucleophilic substitutions, addition reactions, condensation reactions, etc.

3. A compound of claim 2 having the formula:



4. A compound of claim 2 having the formula:



5. A composition consisting essentially of a compound according to claim 2, in admixture with a pharmaceutically acceptable excipient.

6. A method for the treatment of Alzheimer's disease, comprising administering to a human patient in need thereof a pharmaceutically acceptable amount of a compound as claimed in claim 2.

7. A method for the treatment of trisomy 21, comprising administering to a human patient in need thereof a pharmaceutically acceptable amount of a compound as claimed in claim 2.